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Turf Disease Control

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by Dale J. Gallenberg, Extension plant pathologist

Lawn and turf areas can be seriously affected by disease problems. In South Dakota, fungi are the primary pathogens involved in lawn and turf diseases, although other pathogens (eg. nematodes) can cause extensive damage in some situations.

Good lawn and turf care and cultural management often can prevent disease problems from becoming established or can aid in the recovery of affected areas.

Disease prevention practices

- **Sow only those grass species or varieties adapted to the particular location, use and level of management intended.** For example, shade-tolerant species or varieties should be used in areas with reduced sunlight levels.

- **Water properly.** Avoid frequent, light waterings that lead to shallow-rooted turf which is more sensitive to environmental stress. Frequent watering also keeps the grass wet for extended periods which encourages some disease problems. Less frequent, heavy waterings (1-2" applied water) induce deeper rooting and a more stress-resistant turf and minimize moisture in the foliage.

- **Fertilize properly** according to recommendations and based on a soil test. Inadequate fertility stresses the turf while over-fertilization stimulates succulent growth, both of which can increase disease problems.

- **Mow at the recommended height** for the type and use of the turf area. Frequent mowing removes less leaf area, thus reducing stress. Do not cut off more than 1/4 to 1/3 of the leaf area at any one mowing.

- **Monitor thatch buildup**, and remove excess thatch if necessary. Too much thatch can lead to moisture stress and other problems in the turf, as well as support growth of some pathogens.

- **Provide good air movement and allow sunlight to penetrate** into shady areas by thinning trees and shrubs if necessary.

- **Provide good soil drainage** and reduce compaction in those areas where water may collect.

Cultivars resistant to one or more diseases are available for many grass species. Use them where possible. For example, dollar spot, leaf spot/melting-out, necrotic ring spot, powdery mildew, stripe smut, and summer patch are some of the diseases for which resistance has been identified in Kentucky bluegrass. A partial list of Kentucky bluegrass cultivars which have resistance to two or more of these problems includes Adeiphi, A-34, Eclipse, Glade, Majestic, Rugby, Parade and Touchdown.

Fungicides can be used effectively to aid in the control of many lawn and turf diseases. However, they may be expensive and may not be totally effective if the above mentioned cultural practices are not followed. Good cultural management will minimize disease pressure, so use fungicides only when necessary. Homeowners in particular should use cultural methods as a first alternative.

Efficient use of fungicides depends on accurate diagnosis of disease problems. Fungicide application can be preventative (i.e. treatments made prior to disease establishment) or curative (i.e. treatments when disease is established or evident). Curative treatments may use higher fungicide rates or shorter intervals. Exercise care when determining dosage and treatment schedules.

Give some consideration to the possibility o fungicide resistance developing with repeated of certain compounds. Resistance has been documented for benzimidazoles (eg. benomyl) an at least three other major groups of turf fungicides. The Fungicide Resistance Action Committee (FRAQ North American Working Group makes these suggestions:

- **Alternate or mix high-risk fungicides with other compounds**, normally broad-spectrum, multi-site contact fungicides; and

- **Restrict use of high-risk fungicides to one or two application periods** during the season when they can be expected to do the most good. Product labels may contain precautions or recommendations for use with respect to fungicide resistance.

Following is a list of common turf diseases and some of the fungicides available for use in their control, as well as a list of trade names.

The information given is for educational purposes only.

No product endorsement or discrimination by the Cooperative Extension Service or South Dakota State University is intended nor is any responsibility assumed for loss, injury, or other damage resulting from the use or misuse of the products listed.

Always consult the product label for information regarding intended uses, method of application, handling procedures, waiting intervals, and other important safety information.

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FUNGICIDES FOR LAWN AND TURF DISEASES

DISEASE	SELECTED FUNGICIDES[a]
Algae	mancozeb[b]
Dollar Spot, Lanzia spp., and Moellerodiscus spp. (Sclerotinia homeocarpa), and Brown Patch, Rhizoctonia solani	benomyl[b], chlorothalonil[b], fenarimol, ipridione, mancozeb[b], maneb, propiconazole[c], PCNB, thiophanate methyl, thiophanate methyl + mancozeb, thiram, thiram + thiophanate methyl, triadimefon, vinclozolin, cadmium chloride[d], cadmium chloride + thiram[d], cadmium sebacate + potassium chromate + thiram[d], cadmium succinate[d]
Fusarium Patch/Pink Snow Mold, Microdochium nivalis (Fusarium nivale)	benomyl[b], fenarimol, ipridione, mancozeb[b], PCNB, thiophanate methyl, thiophanate methyl + mancozeb, thiram, thiram + thiophanate methyl, triadimefon, vinclozolin, mercury chloride[e], phenylmercuric acetate[e]
Leaf Spot/Melting Out, Bipolaris sorokiniana and Dreschlera poae (Helminthosporium sativum and H. vagans)	chlorothalonil[b], ipridione, mancozeb[b], maneb, PCNB, thiophanate methyl + mancozeb, thiram + thiophanate methyl, vinclozolin, cadmium sebacate + potassium chromate + thiram[d]
Moss	ferrous sulfate[b]
Necrotic Ring Spot, Leptosphaeria korrae)	benomyl[b], fenarimol, ipridione
Powdery Mildew, Erysiphe graminis	fenarimol, propiconazole[c], triadimefon
Pythium Blight, Pythium spp.	chloroneb, etridiazole, mancozeb[b], metalaxyl, phosetyl-Al, propamocarb
Red Thread, Laetisaria fuciformis (Corticum fuciforme)	chlorothalonil[b], fenarimol, ipridione, mancozeb[b], propiconazole[c], thiophanate methyl, thiophanate methyl + mancozeb, triadimefon, vinclozolin, cadmium sebacate + potassium chromate + thiram[d], cadmium succinate[d]
Rust, Puccinia spp.	chlorothalonil[b], mancozeb[b], propiconazole[c], thiophanate methyl + mancozeb, triadimefon
Slime Molds	mancozeb[b]
Stripe Smut, Ustilago striiformis)	benomyl[b], fenarimol, propiconazole[c], thiophanate methyl, triadimefon
Summer Patch, Magnaporthe poae (Phialophora graminicola)	benomyl[b], fenarimol, ipridione, thiophanate methyl, triadimefon
Typhula Blight/Gray Snow Mold, Typhula spp.	chloroneb, chlorothalonil[b], fenarimol, ipridione, PCNB, thiram, thiram + thiophanate methyl, triadimefon, cadmium chloride + thiram[d], cadmium succinate[d], mercury chloride[e], phenylmercuric acetate[e]

[a]Consult individual fungicide product labels for information on application rates and timing. Some products are available for use only by commercial applicators.

[b]Products available for homeowner use.

[c]Do not use propiconazole on home lawns.

[d]Cadmium compounds are restricted use pesticides. For use on golf greens and tees only. See product labels for further restrictions on application and handling.

[e]Mercury compounds not for use on home lawns. For use on golf courses only. See product labels for further restrictions on application and handling.

TRADE NAMES AND COMMERCIAL PRODUCTS

FUNGICIDE	TRADE NAMES[a]
benomyl[b]	Tersan 1991[b], Rigo Benomyl[b]
cadmium chloride[c]	Caddy[c]
cadmium chloride + thiram[c]	Cleary's Cad Trete[c], Lesco Snow Mold Turf Fungicide[c]
cadmium sebacate + potassium chromate + thiram[c]	Kromad[c]
cadmium succinate[c]	Cadminate[c]
chloroneb	Terremec SP, Terraneb SP
chlorothalonil[b]	Daconil 2787 Flowable[b], Daconil 2787 Wettable[b], Ortho Multi-Purpose Fungicide[b]
etridiazole	Koban 30[d], Koban 1.3G
fenarimol	Rubigan AS
ferrous sulfate[b]	Scotts Moss Control Plus Lawn Fertilizer[b]
ipridione	Chipro 26019
mancozeb[b]	Fore[b], Formec 80, Lesco 4 Broad Spectrum Fungicide, Manex II, Manzate 200 DF, Tersan LSR[b]
maneb	Lesco 4 Flowable with Zinc
mercury chloride[e]	Calo-Clor[e], Calo-Gran[e]
metalaxyl	Subdue 2E, Subdue 5G
PCNB	Lesco PCNB
phenylmercuric acetate[e]	PMAS[e]
phosetyl-Al	Aliette 80W
propamocarb	Banol
propiconazole	Banner
thiophanate methyl	Fungo 50
thiophanate methyl + mancozeb	Duosan
thiram	Lesco Thiram 75, Spotrete F, Spotrete 75, Thiramad
thiram + thiophanate methyl	Bromosan
triadimefon	Bayleton
vinclozolin	Vorlan

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[c]Cadmium compounds are restricted use pesticides. For use on golf greens and tees only. See product labels for further restrictions.
[d]Koban 30 for professional use only.
[e]Mercury compounds not for use on home lawns. For use on golf courses only. See product labels for further restrictions.